



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/816,100

04/01/2004

Naoto Shimada

SAS2-PT074

9468

3624 7590 12/10/2008

VOLPE AND KOENIG, P.C.
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER

CHOW, YUK

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

12/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/816,100	Applicant(s) SHIMADA, NAOTO	
	Examiner YUK CHOW	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 and 10-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-8, 10-17, 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al (Pub No.: US2001/0043113) in view of Inoue et al. (Pub. No.: US 2003/0142047).

As to **claim 1**, Hoshino discloses a driving apparatus which drives while sequentially switching a plurality of loads in time series, comprising:

a load driving section (Fig. 5(2)) configured to sequentially drive the plurality of loads by supplying a voltage (Fig. 5(V_o)) and a current (Fig. 5(6a));

a switching section (Fig. 5(43, Q1,Q2,Q3)) configured to select and switch the load driven by the load driving section, the load being selected from the plurality of loads (Fig. 5(15a,b));

a control section (Fig. 5(4)) configured to read load characteristic information (Fig. 7(a,b)) after switching by the switching section before the switching, and to set a voltage and a current by which the load driving section drives the load to a voltage (Fig. 5(V_{REF})) and a current corresponding to the load characteristic information in synchronization with timing of the switching ([0040]-[0046]).

However, Hoshino does not specifically teach characteristic information is stored in a memory device.

Inoue discloses a self-luminous display device wherein teaches a memory for storing a signal for each light emitting element as data (Fig. 2(25) and see [0026]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate a memory device as in Inoue into driving apparatus of Hoshino, because by using the memory device, it will be possible to modulate the signal voltage to be applied to the light emitting element based on the data of the memory, thereby suppressing a variation in a luminance (see Inoue [0027]).

As to **claim 3**, Hoshino and Inoue disclose the apparatus according to claim 1, wherein:

the switching section (Fig. 5(43, Q1,Q2,Q3)) switches the plurality of loads between presence and nonpresence (see Hoshino [0047]-[0050]).

As to **claim 4**, Hoshino and Inoue disclose the apparatus according to claim 1, wherein the plurality of loads are LEDs (see Hoshino Fig. 5(15a,b)).

As to **claim 5**, Hoshino and Inoue disclose the apparatus according to claim 4, wherein the characteristic information contains a V_f value when a predetermined current amount is supplied to the LED (see Hoshino [0018] and [0039]).

As to **claim 6**, Hoshino and Inoue disclose the apparatus according to claim 4, wherein the characteristic information contains an emission amount (see Hoshino [0018] line 5 (variation of luminance)) when a predetermined current amount is supplied to the LED.

As to **claim 7**, Hoshino and Inoue disclose the apparatus according to claim 1, further comprising:

a detection section (see Inoue Fig. 1(8)) configured to detect the characteristic information.

As to **claim 8**, Hoshino and Inoue disclose the apparatus according to claim 7, wherein the plurality of loads are LEDs (see Hoshino Fig. 5(15a,b), and

the detection section includes a light sensor configured to detect light emitted from the LEDs (see Inoue Abstract).

As to **claim 10**, Hoshino and Inoue disclose the apparatus according to claim 1, wherein

the load is a plurality of LEDs (see Hoshino Fig. 5(15a,b)), and

the memory stores a predetermined emission amount of the LED corresponding to a current value supplied to the LED (see Inoue [0026]).

As to **claim 11**, Hoshino and Inoue disclose the apparatus according to claim 4, wherein the control section sets a current value and a voltage value of the load driving section at different timings (see Inoue [0060]).

As to **claim 12**, Hoshino and Inoue disclose the apparatus according to claim 4, wherein the control section sets a voltage value of the load driving section before predetermined time of the switching timing if the voltage value of the load driving section after the switching timing is larger than that of the same before the switching timing (see Inoue [0071]-[0076]).

As to **claim 13**, Hoshino and Inoue disclose the apparatus according to claim 12, wherein the predetermined time corresponds to power source response time (see Inoue [0072]).

As to **claim 14**, Hoshino discloses a lighting apparatus which lights a display device displayed by a video signal, comprising:

a driving apparatus which drives while sequentially switching a plurality of loads in time series (sequentially switching loads in time series is well known driving technique Official Notice), including:

a load driving section (Fig. 5(2)) configured to sequentially drive the plurality of loads by supplying a voltage (Fig. 5(Vo)) and a current (Fig. 5(6a));

a switching section (Fig. 5(43, Q1,Q2,Q3)) configured to select and switch the load driven by the load driving section, the load being selected from the plurality of loads;

a control section (see Fig. 5(4)) configured to read load characteristic information after switching by the switching section before the switching, and to set a voltage and a current by which the load driving section drives the load to a voltage and a current corresponding to the load characteristic information in synchronization with timing of the switching (see [0040]-[0046]); and

a light emitter (Fig. 5(15a, 15b)) configured as a load driven by the load driving section to light the display device, wherein the switching section selects the light emitter driven in synchronization with timing of the video signal ([0057]-[0061]).

However, Hoshino does not specifically teach characteristic information is stored in a memory device.

Inoue discloses a self-luminous display device wherein teaches a memory for storing a signal for each light emitting element as data (Fig. 2(25) and see [0026]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate a memory device as in Inoue into driving apparatus of Hoshino, because by using the memory device, it will be possible to modulate the signal voltage to be applied to the light emitting element based on the data of the memory, thereby suppressing a variation in a luminance (see Inoue [0027]).

As to **claim 15**, Hoshino and Inoue disclose the apparatus according to claim 14, wherein the light emitter includes an LED (See Inoue Fig. 5(15a)).

As to **claim 16**, Hoshino and Inoue disclose the apparatus according to claim 14, wherein the timing of the video signal is a video synchronous signal (see Inoue [0059]).

As to **claim 17**, limitations are identical as in claim 14, same rejection applies.

As to **claim 20, 21, and 22**, limitations in these mean claims are identical to apparatus claims 1, 14 and 17 respectively, same rejections apply.

Claims 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al and Inoue in further view of Koga et al. (US Patent 6,129,437).

As to **claim 18**, Hoshino and Inoue disclose an apparatus according to claim 17 above.

However, Hoshino and Inoue do not teach the display device includes an LCD.

Koga teaches an image display apparatus use for a LCD (Col. 1 lines 20-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use display driving circuit of Hoshino's for a projection type color LCD display, because it is well known that conventional LCD display has better color and it's an improvement over LED.

As to **claim 19**, Hoshino and Inoue disclose an apparatus according to claim 17 above, Koga also teaches a display device includes a digital micromirror device (Col. 1 lines 42-47).

Response to Arguments

2. Applicant's arguments filed 07/02/2008 have been fully considered but they are not persuasive.

Regarding independent claims 1, 14, 17, 20-22, applicant argues that Hoshino does not teach or suggest "a memory". However, examiner respectfully disagrees; a memory device is well known to be used for storing data or information. Nonetheless, examiner is also relied on Inoue's memory device (Fig. 2(25)) for teaching of this limitation.

In addition, applicant argues that Hoshino does not teach or suggest "a switch section". Examiner respectfully disagrees, driving while sequentially switching a plurality of loads in time series, is a matter of design choice. In fact Hoshino has demonstrated this in the disclosure, for example, a plurality of loads (Fig. 4(15c,d,e,f)) are both in series and/or parallel connection, so that they could be turned on simultaneously or sequentially. Based on the reasons above, examiner maintains obviousness rejections of claims 1, 14, 17 20-22.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUK CHOW whose telephone number is (571)270-1544. The examiner can normally be reached on 8-6 M-TH E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. C./
Examiner, Art Unit 2629